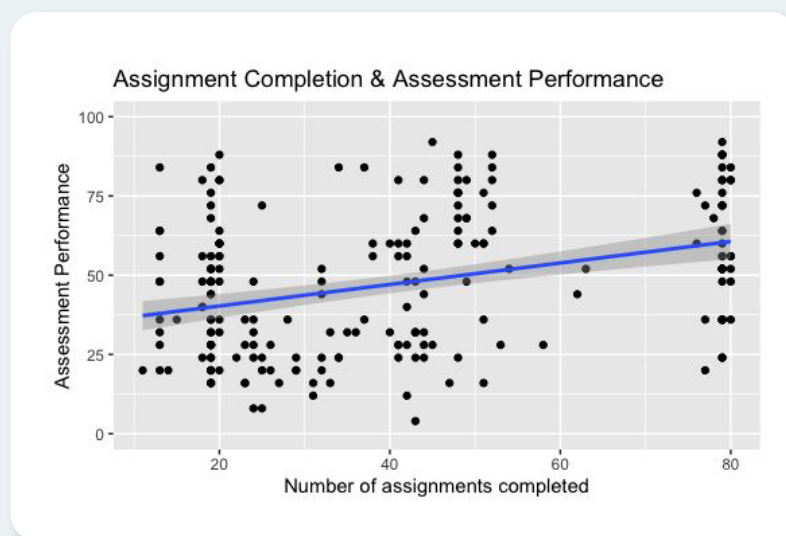


Fall 2021 Learning Science Study on the Implementation of Achieve

PRECALCULUS & CALCULUS OVERVIEW

Homework completion in Achieve was significantly related to student achievement across all participating precalculus and calculus students ($n=1,197$). There was a statistically significant relationship between how many homework activities students finished within Achieve (as a percentage of how many were assigned in their course) and their final grade in the course. This relationship ($r = 0.23$) remained significant even while controlling for students reported GPA, $p < .01$. The graph shows the relationship between homework activity completion and final grade.



Achieve is Macmillan's groundbreaking online platform that marries the textbook content, tutorial-style assessment, and best in class student engagement tools to provide a flexible, accessible resource with powerful analytics. Achieve is built in partnership with instructors, students, and our Learning Science team through iterative improvement and ongoing studies supported by real student data.

OUR METHODS

Instructor and
student surveys



Live focus
groups



Bi-weekly
instructor logs



Student
platform data



Course data
analysis



WHAT STUDENTS TOLD US:

Achieve is engaging.



91% reported being engaged in the course this semester.



60% reported being actively engaged in classroom discussions.



80% reported the pre-lecture activities within Achieve as engaging.



80% reported the homework within Achieve as engaging.

Achieve encourages active learning.



86% reported engaging in active learning in the course this semester.



97% reported that Achieve helped support their learning.



83% reported pre-lecture activities in Achieve helped them stay on track during class discussions.



82% reported pre-lecture activities in Achieve helped them actively learn in the classroom.

WHAT INSTRUCTORS TOLD US:

“I think it really makes it easy for us to assign a lot of practice and have that practice give feedback to the students.”

“I love the flexibility of the system. I can very easily update questions, change scenarios slightly, add hints to questions, and create my own.”



CO-DESIGN & ITERATIVE EVOLUTION OF ACHIEVE

The screenshot shows a problem on a sine wave graph. The problem asks for amplitude, period, and phase shift. A video feedback window is open, showing a video of a person explaining the solution. The video includes the formula $y = A \sin(B(x-C))$ and a graph of a sine wave with labels for amplitude, period, and phase shift.

Macmillan makes iterative improvement to Achieve by building features and content directly into the platform. One such feature borne out of the Fall 2021 Precalculus Study was the dynamic video feedback, developed in partnership with popular YouTube creator Patrick JMT. This video feedback provides students with a successful problem solving strategy related directly to the question at hand, so that students can apply the strategy on their own as they attempt the question a second time.

From a current Achieve user:

“On one of the problems I assigned with a video, only 20% of students answered the problem correctly [on first try], but by the end, all but two had correctly completed the problem.”

